REMARKS

Claims 1-5, 7-18 and 23-31 are currently pending in the application. By this amendment, claim 6 has been cancelled; and claims 1, 14 and 16-18 have been amended; and new claims 23-31 have been added. Applicants respectfully request reconsideration of the present claims in view of the foregoing amendments and the following remarks.

I. Prior Art Rejections:

Rejection of Claims 1-2 and 6-15 and 18 Under 35 U.S.C. §103(a) in View of Sun

Claims 1-2 and 6-15 and 18 are rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,802,482 to Sun (hereinafter "Sun"). This rejection is respectfully traversed.

Applicants' claimed invention as embodied in independent claim 1 is drawn to a method of checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex character according to one or more rules of a selected language, comprising, *inter alia*, the steps of: (1) receiving a first character of a complex character; (2) determining whether the first character may begin a valid sequence of characters for forming a complex character according to the rules associated with the selected language; (3) if the first character may begin a valid sequence of characters for forming a complex character according to rules associated with the selected language, accepting the first character for display; (4) if the first character may not begin a valid sequence of characters for forming a complex character according to rules associated with the selected language, prohibiting accepting the first character for display; and (5) if the first character is accepted for display, displaying the first character to a user on a display screen prior to receiving any additional characters indicating to the user that the first character may begin a valid sequence of characters for forming a complex character according to rules associated with the selected language.

Applicants' claimed invention as embodied in independent claim 14 is drawn to a computer-readable medium on which is stored a computer program for checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex

character according to one or more rules of a selected language, the computer program comprising, *inter alia*, instructions, which when executed by a computer, perform the steps of: (1) receiving a character of a complex character; (2) determining whether the character may be appended to a previous character to form a sequence of characters according to rules associated with forming a complex character of the selected language; (3) if the character may be appended to the previous character according to the rules associated with forming a complex character of the selected language, (a) appending the character to the previous character to form a correctly configured sequence of characters according to the rules associated with the selected language; and (b) displaying the correctly configured sequence of characters on a display screen for viewing by a user prior to receiving any additional characters indicating to the user that the correctly configured sequence of characters is at least a portion of a valid sequence of characters for forming a complex character according to rules associated with the selected language; and (4) if the character may not be appended to the previous character according to the rules associated with forming a complex character of the selected language, prohibiting appending the character to the previous character.

Applicants' claimed invention as embodied in independent claim 18 is drawn to a system for checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex character according to one or more rules of a selected language, comprising, *inter alia*, (1) a computer program module operative (i) to receive a first character; (ii) to determine whether the first character may be the first character of a sequence of characters for forming at least a portion of a complex character according to the rules associated with the selected language; (iii) to receive a second character; (iv) to determine whether the second character may be appended sequentially to the first character according to the rules associated with forming at least a portion of a complex character the selected language; (v) to append the second character sequentially to the first character forming a correctly configured combination of characters if the second character may be appended to the first character according to the rules associated with forming at least a portion of a complex character the selected language; (vi) to prohibit appending the second character to the first character if the

second character may not be appended to the first character according to the rules associated with forming at least a portion of a complex character the selected language; and (vii) to display to a user on a display screen the correctly configured combination of characters prior to receiving any additional characters indicating to the user that the correctly configured combination of characters is at least a portion of a valid sequence of characters for forming a complex character according to rules associated with the selected language.

Applicants' independent claims described above are directed to a method, a computer-readable medium capable of performing a method, and a system comprising a computer program module for performing a method, wherein the method comprises checking a sequence of input characters used to form a complex character of a selected language. In each of Applicants' independent claims, the inputted characters used to form at least a portion of a complex character is displayed for viewing by a user as each character is inputted. Further, each character and the combination of characters is displayed as a correctly configured combination of characters for viewing by a user inputting the characters as each character is validated as a component of the complex character. Such a method provides the user with an opportunity to view the inputted characters, edit the inputted characters, if necessary, and understand the progress being made in forming a given complex character.

The teaching of Sun fails to teach or suggest Applicants' claimed method, computer-readable medium capable of performing the method, and system comprising a computer program module for performing the method. In particular, the teaching of Sun fails to teach or suggest a method comprising a step of displaying each character and combination of characters as each character is inputted by a user and appended to an existing sequence of characters. The teaching of Sun specifically fails to teach or suggest the following claim features: (1) "displaying the first character to a user on a display screen *prior to receiving any additional characters indicating to the user that the first character may begin a valid sequence of characters* for forming a complex character according to rules associated with the selected language" (claim 1); (2) "if the character may be appended to the previous character according to the rules associated with forming a complex character of the selected language, (a) appending the

character to the previous character *to form a correctly configured sequence of characters* according to the rules associated with the selected language; and (b) *displaying the correctly configured sequence of characters on a display screen for viewing by a user prior to receiving any additional characters* indicating to the user that the correctly configured sequence of characters is at least a portion of a valid sequence of characters for forming a complex character according to rules associated with the selected language" (claim 14); and (3) *to display to a user on a display screen the correctly configured combination of characters prior to receiving any additional characters* indicating to the user that the correctly configured combination of characters is at least a portion of a valid sequence of characters for forming a complex character according to rules associated with the selected language (claim 18).

Examiner Singh acknowledges that the teaching of Sun fails to teach or suggest Applicants' claimed invention as embodied in independent claims 1, 14 and 18 on page 3, lines 8-12. Examiner Singh specifically states

> Sun differs from the claimed invention in that he initially stores the characters in a header and stores the data structure in memory which is later retrieved by the output device for display; however, he still determines if the display is part of a valid sequence, thus it would have been obvious to one of ordinary skill in the art at the time of the invention to display characters as they are validated as illustrated by Sun.

Applicants disagree.

The teaching of Sun does not provide any guidance to one of ordinary skill in the art the desire or need to display each character of a string of characters used to form a foreign language character as a user inputs each character. In fact, the teaching of Sun teaches away from such a method. As disclosed in the teaching of Sun, column 3, lines 26-33, the method of Sun

> "merely generates data structures based upon the validity of the input data with respect to combining rules **108**. Meaningless data structures can therefore be generated if the input data are in the wrong context (e.g., wrong sequences). The operation of the input processor **106** is analogous to the generation of English words without a spell checker.

In other words, the method of Sun may create meaningless data structures for viewing by a user. A user may insert a valid string of characters (i.e., the string of characters follows the combining rules) even though the string of characters forms a meaningless data structure. For example, a user may insert a following vowel from a group of allowable following vowels into a string of characters that follows the combining rules in the method of Sun, even though the chosen following vowel is incorrect for the given character.

Using the method of Sun, a user does not have an opportunity to correct or modify incorrectly inputted characters until after the data structure (formed from the entire string of inputted characters) is generated and displayed for view. Further, the method of Sun does not form correctly configured combinations of characters as a user inputs each character. In the method of Sun, the entire string of characters must be inserted first to determine whether the string of characters can form a foreign language character according to the combining rules of the foreign language. Then, a subsequent operation is necessary (i.e., header information) to assemble the string of characters into a data structure.

There simply is no suggestion in the teaching of Sun to modify the teaching of Sun as suggested by Examiner Singh. Given that the teaching of Sun fails to teach or suggest Applicants' claimed invention as featured in Applicants' independent claims 1, 14 and 18, the teaching of Sun cannot make obvious Applicants' claimed invention as featured in claims 1, 14 and 18. Since claims 2, 7-13 and 15 depend from claims 1 and 14, and recite additional claim features, the teaching of Hetherington cannot make obvious claims 2, 6-13 and 15. Accordingly, Applicants respectfully request withdrawal of this rejection.

Rejection of Claims 16-17 Under 35 U.S.C. §103(a) in View of Sun and Hetherington

Claims 16-17 are rejected under 35 U.S.C. §103(a) as being obvious over Sun in view of U.S. Patent No. 6,411,948 to Hetherington et al. (hereinafter "Hetherington"). This rejection is respectfully traversed.

Applicants' claimed invention embodied in independent claim 16 is drawn to a method of checking a sequence of input characters, wherein the sequence of input characters

forms at least a portion of a complex character according to one or more rules of a selected language, comprising, *inter alia*, the steps of: (1) receiving an input character; (2) if the character is not associated with the selected language, displaying the character; (3) if the character is associated with the selected language, determining whether the character may be displayed as a single character according to the rules of the selected language; (4) if the character may not be displayed as a single character according to the rules of the selected language, determining whether the character may be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character according to the rules of the selected language; (5) if the character may not be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character, discarding the character; and (6) if the character may be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character, displaying the character on a display screen for viewing by a user prior to receiving any additional characters indicating to the user that the character is at least a portion of a valid sequence of characters for forming a complex character according to rules associated with the selected language.

Applicants' claimed invention as embodied in independent claim 17 is drawn to a method of establishing a sequence validation context of a sequence of characters forming at least a portion of a complex character, comprising, *inter alia*, the steps of (1) determining a maximum number of characters that may comprise a valid sequence of characters according to the rules of a selected language, (2) beginning with a last simple character of a sequence of characters, determining whether the last character is valid as a complete sequence of characters comprising a complex character, (3) if the last character of the sequence of characters is valid as a complete sequence of characters comprising a complex character, then returning a context of the last character as a context for a complex character, (4) if the last character of the sequence of characters is not valid as a complete sequence of characters comprising a complex character, then determining whether a combination of the last character and a character input immediately to the left of the last character is valid as a complete sequence of characters comprising a

complex character, (5) if the combination of the last character and the character input immediately to the left of the last character is valid as a complete sequence of characters comprising a complex character, then returning a context for the combination as the context for a complex character, (6) if the combination is not valid as a complete sequence of characters comprising the complex character, then determining whether the combination combined with a next character to the left of the combination is valid as a complete sequence of characters comprising a complex character, and if not, then creating subsequent combinations of characters by adding one character at a time to the left of the last subsequent combination until the maximum number of characters that may comprise a valid sequence have been combined to form a sequence of characters that may be checked for validity as a complete sequence of characters comprising a complex character, and (7) if any one of the subsequent combinations of characters are valid as a complete sequence of characters comprising a complex character according to the rules of the selected language, then returning a context for the one subsequent combination as the context for a complex character.

The teaching of Sun fails to teach or suggest Applicants' claimed invention as embodied in independent claims 16 and 17. Regarding Applicants' independent claim 16, Examiner Singh acknowledges that the teaching of Sun fails to teach or suggest a method comprising a step of displaying an inputted character even if the character is not associated with a selected language; however, Examiner Singh concludes that the claimed invention is obvious given the teaching of Hetherington. On page 4, line 17 to page 5, line 4 of the Office Action, Examiner Singh states

> Sun does not teach a method of displaying the character even if it is not associated with the selected language; however, Hetherington does. Hetherington teaches that if the character is not a valid character of the language, the input method editor will display the character and wait for an additional character to be added. See columns 15-16 and figures 5a-5f. It would have been obvious tom one of ordinary skill in the art at the time of the invention to combine Sun's method of validating character appendages to a sequence of characters with Hetherington's system for displaying the character even when it is not associated with the language since both Sun and Hetherington are concerned with the proper construction of a complex character.

Applicants disagree.

Examiner Singh suggests that one of ordinary skill in the art, given the teaching of Sun, would have (1) realized that the teaching of Sun contained one or more deficiencies, at least one of which is the display of inputted characters, which do not belong to a given foreign language; (2) sought out the teaching of Hetherington directed to a method of forming a string of characters, wherein the process of assembling the string of characters does not follow combining rules for forming a complex character of the given foreign language; and (3) combined select portions of the teaching of Hetherington with select portions of the teaching of Sun in an attempt to reconstruct Applicants' claimed invention.

Applicants respectfully submit that the teaching of Sun teaches away from such a proposed modification of the teaching of Sun. The teaching of Sun specifically teaches that the formation of a string of characters must follow combining rules of a given foreign language. Unlike the teaching of Sun, using the method disclosed in the teaching of Hetherington, a user may intentionally or erroneously create a string of characters, wherein the string of characters violates one or more combining rules for forming a complex character of the given foreign language. Further, the teaching of Hetherington does not provide a validation/checking system during the formation of complex characters, wherein rules of a selected language are followed as each character to inputted by a user to form a complex character according to the rules of forming a complex character of the selected language.

Applicants respectfully submit that there is no suggestion or motivation for one of ordinary skill in the art to modify the teaching of Sun as suggested by Examiner Singh. It is unclear to Applicants why one of ordinary skill in the art would modify the teaching of Sun as suggested by Examiner Singh. However, even if the proposed modification of the teaching of Sun was proper, the combined teaching of Sun and Hetherington still fails to teach or suggest Applicants' claimed invention as embodied in independent claim 16. In particular, the combined teaching of Sun and Hetherington still fails to teach or suggest (1) a method wherein if the inputted character is associated with a select language, determining whether the character may be displayed as a single character according to the rules of the select language; (2) a method

wherein if the character may not be displayed as a single character according to the rules of the select language, determining whether the character may be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character according to the rules of the select language; and (3) a method wherein if the character may be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character, displaying the character on a display screen for viewing by a user prior to receiving any additional characters indicating to the user that the character is at least a portion of a valid sequence of characters for forming a complex character according to rules associated with a select language.

Regarding independent claim 17, neither of the teachings of Sun or Hetherington teaches or suggests Applicants' claimed invention. The teachings of Sun and Hetherington do not suggest a method of establishing a sequence validation context of a previously inputted sequence of characters, which form at least a portion of a complex character. Consequently, even if the combination of the teachings of Sun and Hetherington is proper, the combined teaching fails to teach or suggest at least the following features of claim 17: (1) a method of establishing a sequence validation context of a sequence of characters forming at least a portion of a complex character; (2) a method of establishing a sequence validation context of a sequence of characters comprising a step of determining a maximum number of characters that may comprise a valid sequence of characters according to the rules of a selected language; (3) a method of establishing a sequence validation context of a sequence of characters comprising a step of *beginning with a last simple character of a sequence of characters*, determining whether the last character is valid as a complete sequence of characters comprising a complex character; (4) a method of establishing a sequence validation context of a sequence of characters comprising a step of returning a context of the last character as a context for a complex character if the last character of the sequence of characters is valid as a complete sequence of characters comprising a complex character; (5) a method of establishing a sequence validation context of a sequence of characters comprising a step of *determining whether a combination of the last character and a character input immediately to the left of the last character is valid as a*

complete sequence of characters comprising a complex character if the last character of the sequence of characters is not valid as a complete sequence of characters comprising a complex character; (6) a method of establishing a sequence validation context of a sequence of characters comprising a step of returning a context for a combination of characters as the context for a complex character if the combination of the last character and the character input immediately to the left of the last character is valid as a complete sequence of characters comprising a complex character; (7) a method of establishing a sequence validation context of a sequence of characters comprising a step of determining whether a combination of (i) the last character and the character input immediately to the left of the last character combined with (ii) a next character to the left of the combination is valid as a complete sequence of characters comprising a complex character, and if not, then creating subsequent combinations of characters by adding one character at a time to the left of the last subsequent combination until a maximum number of characters that may comprise a valid sequence have been combined to form a sequence of characters that may be checked for validity as a complete sequence of characters comprising a complex character if the combination is not valid as a complete sequence of characters comprising the complex character; and (8) a method of establishing a sequence validation context of a sequence of characters comprising a step of returning a context for the one subsequent combination as the context for a complex character if any one of subsequent combinations of characters are valid as a complete sequence of characters comprising a complex character according to the rules of the selected language.

There simply is no suggestion in either of the teachings of Sun and Hetherington of a method of establishing a sequence validation context of a sequence of characters as recited in Applicants' independent claim 17.

Given that the combined teaching of Sun and Hetherington fails to teach or suggest Applicants' claimed invention as featured in Applicants' independent claims 16 and 17, the combined teaching of Sun and Hetherington cannot make obvious Applicants' claimed invention as featured in claims 16 and 17. Accordingly, Applicants respectfully request withdrawal of this rejection.

Rejection of Claims 3-5 Under 35 U.S.C. §103(a) in View of Sun and Hetherington2

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun in view of U.S. Patent No. 6,272,495 to Hetherington (hereinafter "Hetherington2"). This rejection is respectfully traversed.

Applicants' claims 3-5 are directed to the method of independent claim 1, wherein a state transition table is utilized in the determination of whether a second character may be appended to the first character according to rules associated with forming a complex character of the selected language. A description of Applicants' claimed invention as embodied in independent claims 1 and a description of the teaching of Sun may be relied upon above.

In addition to the above-noted deficiencies in the teaching of Sun discussed above, the teaching of Sun also fails to teach or suggest the use of state transition tables as recited in Applicants' claims 3-5. Examiner Singh acknowledges that the teaching of Sun fails to teach or suggest state transition tables in which a state is assigned to characters according to the rules of a selected language (See, May 02, 2003 Office Action, page 6, lines 4-7). Examiner Singh relies on the teaching of Hetherington2 to allegedly cure the above-noted deficiencies in the teaching of Sun.

The teaching of Hetherington2 is directed to a method of processing free-format data stored in a computing system. For example, the teaching of Hetherington2 is directed to methods of processing free-format data, such as an address, which contains both numbers and text, by analyzing each element of the free-format data, the relation of each element to other elements within the free-format data, and the "attributes" (e.g., the street name, the street number, and the town name) of the data. The teaching of Hetherington2 has nothing to do with methods, computer-readable mediums, or systems for forming complex characters or rules associated with forming complex characters of a selected language.

Applicants respectfully submit that one of ordinary skill in the art would not have been motivated to combine the teachings of Sun and Hetherington2 given that the combination of references have nothing to do with each other. The only similarities in Sun and Hetherington2, noted by Applicants, is that the teachings of Sun and Hetherington2 fail to teach or suggest each

of the claim features of Applicants' claimed invention embodied in independent claim 1 described above. Consequently, even if the combination of Sun and Hetherington2 were deemed proper, the combined teaching of Sun and Hetherington2 fails to teach or suggest Applicant's claimed invention.

Applicants respectfully submit that (1) the teaching of Hetherington2 is nonanalogous art, (2) there is no suggestion or motivation provided to one of ordinary skill in the art in the teaching of Sun for the need to use free-format data tables of Hetherington2 to form characters of a foreign language, and (3) even if the combined teachings is proper, the combined teaching still fails to make obvious Applicants' claimed invention.

For at least the reasons given above, Applicants respectfully submit that the combined teaching of Sun and Hetherington2 does not make obvious Applicants' claimed invention embodied in dependent claims 3-5. Accordingly, Applicants respectfully request withdrawal of this rejection.

II. New Claims 23-31:

New claims 23-31 are directed to various embodiments of Applicants' claimed invention. New claims 23-26 depend from independent claims 1 and 14, and recite additional claim features. Applicants respectfully submit that new claims 23-26 are allowable over the art of record for at least the reasons given above with regard to the patentability of independent claims 1 and 14.

New independent claim 27 is directed to a method of forming at least a portion of a complex character according to one or more rules of a selected language, comprising, *inter alia*, the steps of (1) receiving a first character of a complex character; (2) receiving a second character of a complex character; (3) in a state transition table, assigning a first state to the first character according to the rules associated with the selected language; (4) assigning a second state to the second character according to the rules associated with the selected language; (5) determining whether the state transition table includes a state transition from the first state to the second state; (6) if the state transition table includes a state transition from the first state to the

second state, appending the second character to the first character to form a correctly configured combination of characters according to the rules associated with forming a complex character of the selected language; and (7) if the state transition table does not include a state transition from the first state to the second state, prohibiting the second character from being appended to the first character. The art of record fails to teach or suggest such a method.

New claims 27-31 depend from new independent claim 27 and recite additional claim features. Applicants respectfully submit that new claims 27-31 are allowable over the art of record for at least the reasons given above with regard to the patentability of independent claim 1.

III. Conclusion:

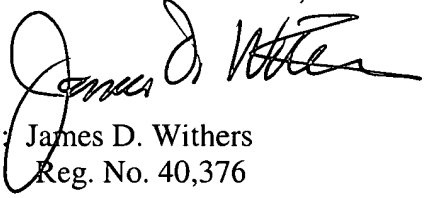
For at least the reasons given above, Applicants submit that claims 1-5, 7-18 and 23-31 define patentable subject matter. Accordingly, Applicants respectfully request allowance of these claims.

Kindly charge Deposit Account No. 13-2725 in the amount of $192.00 representing the fee for 6 additional claims over 20 and the addition of 1 independent claim. This amount is believed to be correct; however, the Commission is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2725.

Should the Examiner believe that anything further is necessary to place the application in better condition for allowance, the Examiner is respectfully requested to contact Applicants' representative at the telephone number listed below.

Respectfully submitted,

MERCHANT & GOULD, LLC



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